VEGETATIVE KEY TO THE WOODY PLANTS OF ITASCA STATE PARK, MINNESOTA

by

Murray F. Buell
and Robert L. Cain

Second Edition
Edited by Gerald B. Ownbey

DEPARTMENT OF BOTANY
UNIVERSITY OF MINNESOTA
1968

VEGETATIVE KEY TO THE WOODY PLANTS OF ITASCA STATE PARK, MINNESOTA

by

Murray F. Buell
and Robert L. Cain

Second Edition
Edited by Gerald B. Ownbey

The editor has attempted to bring the botanical names used in this edition into agreement with those found in Ed. 8 of Gray's Manual of Botany, by M. L. Fernald (1950). A few species included in the earlier edition have been excluded and a few more recently reported ones from the Itasca area have been added. The editor has also made numerous small changes in the text and has rewritten small sections when necessary because of the addition or exclusion of species. The basic plan of the key and the character differences used in the dichotomies are, however, mainly those of the original authors. The editor assumes full responsibility for any errors that may have been introduced during the editorial work.

DEPARTMENT OF BOTANY
UNIVERSITY OF MINNESOTA
1968

KEY TO GROUPS

Leaves linear, less than 5 mm. wide, needle-like or minute and scale-like, persistent except in Larix (Conifers).
GROUP I. Page 1.

Leaves broad, neither needle-like nor scale-like, if linear more than 5 mm. wide.

II. Leaves opposite. . . . . GROUP II. Page 3.

II. Leaves alternate.

III. Leaves compound . . . . . GROUP III. Page 7.

III. Leaves simple . . . . . GROUP IV. Page 9.

GROUP I. CONIFERS AND TAXUS

Leaves opposite or in whorls of 3, scale-like or awl-shaped.

2. leaves in whorls of 3, awl-shaped; low, spreading shrubs.
Juniperus communis var. depressa

2. Leaves opposite, 4-ranked.

3. Leaves all keeled; leaf-covered branchlets 4-angled in cross-section; small, planted trees.
Juniperus virginiana

3. Lateral two ranks of leaves keeled, the other two ranks plane and with a gland near the tip; leaf-covered branchlets flat in cross-section; native trees.
Thuja occidentalis

Leaves spirally arranged, scattered, or in fascicles, or both, needle-like or linear.

4. Leaves borne in fascicles of 2-5, except in young seedlings (Pines).

5. Leaves 5 in each fascicle; sheath at base of fascicle deciduous (Soft Pines).

6. Branchlets glabrous or nearly so, green or light greenish-brown; leaves flexible; native trees.
Pinus strobus

6. Branchlets pubescent at least when young, yellowish or reddish-brown; leaves stiff; planted trees.

7. Young branches with a very fine pubescence (under lens).
Pinus monticola

7. Young branches with a conspicuous, dense pubescence, the hairs easily visible to the naked eye.
Pinus koraiensis

5. Leaves 2 in each fascicle; sheath persistent (Hard Pines).

8. Leaves 8-15 cm. long; native trees.
Pinus resinosa

8. Leaves 2.5-7 cm. long, or less.

9. Leaves 2.5-5.5 cm. long, stiff; original bark persistent, making small branches rough below leaves, gray or dark brown; native trees.
Pinus banksiana

9. Leaves 2.5-7 cm. long, flexible; original bark exfoliating early, leaving small branches smooth below leaves, orange or yellowish; planted trees.
Pinus sylvestris

4. Leaves borne singly or in fascicles of 20 or more.

10. Leaves arranged in two ways, either singly along the lead shoots or in fascicles of 20 or more on short side shoots.

11. Leaves triangular in cross-section; cones less than 2 cm. long; native trees, mostly of bogs.
Larix laricina

11. Leaves flattened, somewhat keeled below; cones 2 cm. or more long (or less in L. leptolepis); planted trees.

12. White bands conspicuous on lower surfaces of the leaves; cone scales recurved at the apex.
Larix leptolepis

12. White bands absent or less conspicuous on lower surfaces of the leaves; cone scales straight or slightly incurved. Larix decidua

10. Leaves always borne singly, never in fascicles.

13. Leaves 4-angled in cross section.

14. Young twigs brownish, densely glandular-pubescent; sterigmata about .8 mm. long; leaves usually less than 1 cm. long; stomatal rows usually 4-5 on each side; native trees, mostly in bogs.
Picea mariana

14. Young twigs yellowish, sparingly glandular-pubescent to glabrous; upland trees.

15. Sterigmata 1-1.4 mm. long; leaves usually 2-2.5 cm. long, sharp-pointed; stomatal rows usually 4-5 on each side; planted trees.
Picea pungens

15. Sterigmata mostly .5-.8 mm. long; leaves mostly 1-2 cm. long, more blunt; stomatal rows usually 2-4 on each side.

16. Young twigs sparingly glandular-pubescent; stomatal rows usually 4 on each side; planted trees. Picea abies

16. Young twigs glabrous; stomatal rows usually 2-3, rarely 4 on each side; native trees. *Picea glauca*

13. Leaves flattened in cross-section.

17. Sterigmata present, the twigs rough after shedding of the leaves; leaves 8-13 mm. long, appearing 2-ranked; planted trees. *Tsuga canadensis*

17. Sterigmata absent, the leaves attached directly to the surface of the twig.

18. Leaf bases decurrent; low, sprawling shrubs; rare; native. *Taxus canadensis*

18. Leaf bases not decurrent, leaving a round, flat scar upon falling; resin blisters in bark; common upland trees. *Abies balsamea*

GROUP II. OPPOSITE-LEAVED SPECIES.

1. Leaves simple. Turn to p. 6 for alternate choice.

2. Leaf margins entire, irregularly wavy, or ciliate.

3. Leaf margins with two or three irregular, rounded, lateral lobes or irregularly wavy; stamens and styles exserted; berry discolored or blackish; low prairie shrubs. *Symphoricarpos occidentalis*

3. Leaf margins neither laterally lobed nor irregularly wavy.

4. Midrib prominent beneath, the lateral veins very inconspicuous or invisible, the under surfaces except the midrib densely matted with minute, short, stellate hairs; leaf margins revolute, the blade 3-5 times as long as broad, narrowly elliptical, blunt-tipped; upper surfaces dark green and glabrous at maturity; low bog shrubs. *Kalmia polifolia*

4. Midrib and lateral veins clearly visible, the under surfaces glabrous, scaly or variously pubescent but not as above; leaf margins not revolute, the blade 1-3 times as long as broad.

5. Veins strongly arcuate, i.e., the lateral veins curving regularly toward the apex (Dogwoods).

6. Leaves broadly elliptical, generally 2/3 as broad as long or nearly round, woolly-pubescent beneath, appressed-pubescent above; twigs green, with distinct purple dots. *Cornus rugosa*

6. Leaves only 1/2 as broad as long or narrower; twigs gray, purplish or green, without distinct purple dots.

7. Year-old twigs gray; new growth purplish.
Cornus racemosa

7. Year-old twigs as well as new growth purple, usually polished (green in dense shade or bog forest).

8. Plants stoloniferous; leaves with appressed pubescence on the under surfaces.
Cornus stolonifera var. *stolonifera*

8. Plants not stoloniferous; leaves woolly-pubescent on the under surfaces.
Cornus stolonifera var. *baileyi*

5. Veins not strongly arcuate, i.e., the lateral veins following a more or less direct path toward the margin.

9. Leaf margins ciliate.

10. Twigs deep orange, covered with stiff, spreading hairs; terminal bud slender, about 4 mm. long, pointed and the same color as the twig; bog shrubs. *Lonicera villosa* var. *solonis*

10. Twigs green, gray, or light brown, soft-pubescent or glabrous.

11. Twigs glabrous or only minutely pubescent; shrubs.

12. Young twigs greenish or gray.

13. Petioles conspicuously ciliate (without lens), the hairs 1-2 mm. long; moist woods and bogs.
Lonicera canadensis

13. Petioles glabrous or puberulous, if ciliate the cilia obscure, .5 mm. or less long; planted, sometimes escaped.
Lonicera tatarica

12. Young twigs yellow-brown, very slender; petioles not coarsely ciliate; found in open places, in well-drained soil.
Symphoricarpos albus

11. Twigs with long spreading hairs; leaves broadly elliptical to orbicular, having abundant pubescence above and below; vines.
Lonicera hirsuta

9. Leaf margins not ciliate but sometimes with extremely short, fine pubescence.

14. Leaves and twigs covered with silvery and brownish scales; planted shrub or small tree.
Shepherdia argentea

14. Leaves glabrous or pubescent but not scaly.

15. Leaves glabrous or glabrate above.

16. Leaves broadly ovate-attenuate, the base subtruncate, truncate or shallowly cordate, the petiole 1-2.5 cm. long; planted shrubs.
Syringa vulgaris

16. Leaves various, sessile or on petioles .1-.5 cm. long, very rarely longer.

17. Leaves elliptical to suborbicular, the outermost (on fertile stems) perfoliate; upland vines.
Lonicera dioica var. glaucescens

17. Leaves ovate to oblong-ovate, the base rounded, subtruncate or shallowly cordate, petiolate, the petioles rarely exceeding .5 cm.; planted shrubs, sometimes escaped.
Lonicera tatarica

15. Leaves densely and persistently pubescent above with fine hairs, elliptical to oblong or narrowly obovate; bog shrubs.
Lonicera oblongifolia

2. Leaf margins serrate or lobed.

18. Leaves with irregular, small, rounded lateral lobes, or often unlobed or irregularly wavy; low shrubs of dry, open places.
Symphoricarpos occidentalis

18. Leaves with regular more or less pointed lobes, or unlobed and merely serrate.

19. Leaves lobed.

20. Margin of lobes entire except for occasional large, rounded teeth, the teeth seldom more than 1 per cm. of margin.
Acer saccharum

20. Margin of lobes serrate especially toward the ends of the lobes, the teech 2-3 per cm. of margin.

21. Leaves silvery-whitish beneath, dark green above; young twigs reddish-brown; lenticels conspicuous, light; sinuses of the leaves open and shallow, the lobes tapering from the base; trees.
Acer rubrum

21. Leaves only slightly paler beneath than above; young twigs greenish; lenticels inconspicuous; shrubs.

22. Leaf bases rounded or broadly cuneate; year-old twigs gray; petiole with 2 or more glands near the blade.

23. Glands sessile or stalked, the apex low-convex or depressed, .2-.6 mm. across.
Viburnum trilobum

23. Glands sessile, saucer-like, the center depressed, .5-1.2 mm. across the longest way.
Viburnum opulus var. roseum

22. Leaf bases cordate; year-old twigs olive-green; petiole without glands.
Acer spicatum

19. Leaves not lobed.

24. Bark on first-year twigs green or reddish, becoming gray on the older branches.

25. Petiole bearing 2 or more stalked glands near the blade; leaves usually palmately lobed; tall, erect shrubs. *Viburnum trilobum*

25. Petiole without glands; leaves never lobed; upper side of stem often red; low, arching shrubs. *Diervilla lonicera*

24. Bark on first-year twigs light brown or yellowish-brown.

26. Leaves coarsely serrate, with about 3 large teeth per cm. of margin, downy-pubescent beneath. *Viburnum rafinesquianum*

26. Leaves finely serrate, with about 5 small teeth per cm. of margin, glabrous or inconspicuously pubescent beneath. *Viburnum lentago*

1. Leaves compound.

27. Leaves 3-foliate; young branches uniformly green and polished. *Acer negundo*

27. Leaves 5-11-foliate.

28. First-year twigs polished, green; leaves 3-5-foliate; bases of each pair of leaves nearly touching around the stem; axillary buds gray-pubescent, almost hidden. *Acer negundo*

28. First-year twigs dull gray or brownish; leaves 5-11-foliate; mature axillary buds clearly visible.

29. Pith large, 3/4 the diameter of the twigs, the fresh-broken twigs exuding a strong odor; wood weak; lenticels large, raised; petiole and rachis red; shrubs. *Sambucus pubens*

29. Pith small, 2/3 the diameter of the twigs or less; wood strong; lenticels small, not raised; trees.

30. Twigs, petiole and rachis densely and finely pubescent; leaflets stalked; lenticels of young twigs light-colored; trees, mostly in uplands. *Fraxinus pennsylvanica* var. *pennsylvanica*

30. Twigs, petiole and rachis glabrous or nearly so.

31. Leaflets stalked, glabrous at the base; lenticels of young twigs light-colored; trees, mostly in uplands. *Fraxinus pennsylvanica* var. *subintegerrima*

31. Leaflets sessile or nearly so, pubescent at the base and also a small amount of brownish pubescence present on adjacent portions of the rachis; lenticels of young twigs black; trees, mostly in swamps.
Fraxinus nigra

GROUP III. ALTERNATE, COMPOUND-LEAVED SPECIES

1. Poisonous plants exuding a volatile oil which frequently causes severe skin poisoning; leaves 3-foliate, shiny on the upper side; stipules absent; low shrubs without spines or thorns.
Rhus radicans var. *rydbergii*
1. Non-poisonous plants; leaves, if 3-foliate, dull above; stipules usually conspicuous, rarely absent; stems often prickly, spiny or thorny.

2. Crushed leaves exuding a bitter oil having a citrous fragrance; stipules modified into strong spines.
Xanthoxylum americanum
2. Crushed leaves without citrous fragrance.

3. Leaves with 3-9 leaflets.

4. Spines and prickles absent.

5. Stipules absent; leaves palmately compound; vines.
Parthenocissus inserta
5. Stipules present.

6. Stems low, decumbent; leaves ternate; semi-woody shrubs or vines with free stipules.
Rubus pubescens
6. Stems erect; leaves pinnate; shrubs with stipules adnate to the petiole.
Rosa blanda var. *blanda*
4. Spines or prickles present.

7. Stipules adnate to the petiole; leaves pinnately compound (Roses).

8. Spines immediately below the stipules well developed; stems with or without other spines or prickles; leaflets 7-9. *Rosa woodsii* var. *fendleri*

8. Strong spines immediately below the stipules lacking; prickles needle- or bristle-like, with scarcely enlarged bases.

9. Leaflets mostly 5, the teeth coarse and spreading; twigs of current year's growth abundantly prickly.
Rosa acicularis
9. Leaflets mostly 7, the teeth fine and ascending; twigs of current year's growth of older canes smooth or sparsely prickly.

10. Margin of leaflets simply serrate.
Rosa blanda var. *blanda*

10. Margin of leaflets doubly serrate.
Rosa blanda var. *acicularioides*

7. Stipules free from the petiole; leaves pinnately or palmately compound (Blackberries and Raspberries).

11. Prickles weak to strong, scattered; stems not bristly-glandular.

12. Stems prostrate or low-arching, normally rooting at the tips and nodes; inflorescences ascending, racemiform, mostly 4-9-flowered, the lowermost usually in the axils of 3-foliate leaves, the upper ones subtended by foliaceous bracts; primocane leaves pilose beneath on the veins.
Rubus flagellaris alliance
(*R. minnesotanus*, as to Itasca)

12. Stems normally erect or high-arching, usually not rooting at the tips or nodes; inflorescences racemiform to reduced and corymbiform, the lowermost flowers subtended by foliaceous bracts, the upper ones by foliaceous or stipulaceous bracts.

13. Flowering branches, pedicels, petioles and petiolules with abundant stalked glands and also softly pubescent with spreading hairs; primocane leaves velvety-pubescent and soft to the touch beneath.
Rubus allegheniensis

13. Stalked glands absent from all parts or very rarely a few on the pedicels; sessile glands sometimes present.

14. Primocane leaves velvety-pubescent and soft to the touch beneath; peduncles more or less densely villous.
Rubus pensilvanicus
(including *R. recurvans*)

14. Primocane leaves sparsely pilose, mainly on the veins beneath, not soft to the touch; peduncles usually less villous.
Rubus canadensis alliance
(*R. acridens*, as to Itasca)

11. Prickles weak to the touch, numerous; stems bristly-glandular.

15. Stems with little or no fine pubescence.
Rubus idaeus var. *strigosus*

15. Stems, peduncles and pedicels finely pubescent.
Rubus idaeus var. *canadensis*

3. Leaves with 10 or more leaflets.

16. Stems armed with prickles.
Rosa woodsii var. *fendleri*

16. Stems unarmed.

17. Fresh-cut stems exuding milky juice.

18. Young stems glabrous or puberulous. *Rhus glabra*

18. Young stems densely pubescent. *Rhus typhina*

17. Fresh-cut stems not exuding milky juice.

19. Leaflets 1-3 cm. long, entire; stipules modified into small, stiff spines; planted shrubs. *Caragana arborescens*

19. Leaflets 5-6 cm. long, serrate; stipules broad, leaf-like, early deciduous; native shrubs or small trees. *Pyrus decora*

GROUP IV. ALTERNATE, SIMPLE-LEAVED SPECIES

1. Leaves pinnately or palmately lobed.

2. Leaves pinnately lobed (Oaks).

3. Tips of the lobes and teeth with distinct bristles.

4. Sinuses reaching about half-way to the midrib; leaf blade widest near the middle; acorn not striped.

5. Acorn cup covering about 1/3 of the nut; common. *Quercus rubra* var. *borealis*

5. Acorn cup covering only the base of the nut. (This variety is typically of more southern distribution; though reported from Itasca Park its presence here and elsewhere in northern Minnesota is questionable.) *Quercus rubra* var. *maxima*

4. Sinuses reaching about two-thirds of the way to the midrib, the lobes themselves lobed or deeply toothed; leaf blade widest above the middle; acorn with longitudinal stripes; very rare at Itasca. *Quercus ellipsoidalis*

3. Tips of the lobes rounded, lacking bristles; common. *Quercus macrocarpa* forma *olivaeformis*

2. Leaves palmately lobed.

6. Leaves permanently and densely white-tomentose beneath, more thinly tomentose above when young, dark green and glabrate above at maturity; blades shallowly 3-5-lobed and also irregularly dentate; bark whitish-gray; planted trees. *Populus alba*

6. Leaves glabrous or variously pubescent or glandular, but never tomentose beneath; native shrubs (Currents and Gooseberries).

7. Stems armed with spines or prickles at the nodes or between the nodes.

8. Spines short and weak throughout; leaf base truncate or cuneate or slightly cordate; sinuses deep and narrow; gray bark of younger stems exfoliating with age, leaving older branches a deep reddish-brown or blackish color. Ribes hirtellum

8. Spines stiff and usually abundant, the nodal spines longer than the others; branches yellowish-brown or gray.

9. Nodal spines 1-3, long and stout; older branches gray; leaf base truncate or slightly cordate, densely pubescent beneath. Ribes cynosbati

9. Nodal spines long and very slender; older branches yellowish-brown; leaf base deeply cordate, sparsely pubescent beneath. Ribes lacustre

7. Stems unarmed.

10. Leaves with prominent yellow glands on the under sides.

11. Crushed leaves and bark with a pronounced fetid odor; leaf base deeply cordate, with a narrow sinus. Ribes hudsonianum

11. Crushed leaves and bark without a pronounced fetid odor; leaf base truncate or shallowly cordate, with a broad, open sinus. Ribes americanum

10. Leaves without prominent yellow glands on the under sides.

12. Crushed leaves and branches fetid; leaf base deeply cordate; prostrate shrubs. Ribes glandulosum

12. Crushed leaves and branches not fetid; leaf base cordate or truncate; erect shrubs.

13. Leaves shallowly 3-lobed, the sinuses open and broadly V-shaped. Ribes triste

13. Leaves deeply lobed, the sinuses narrow. Ribes hirtellum

1. Leaves not lobed, the margin entire or serrate.

14. Leaf margins entire (or sometimes very finely crenate in Vaccinium oxycoccus).

15. Twigs brown-woolly; young leaves white-woolly beneath, turning brown-woolly with age; leaf margins revolute; bog shrubs. Ledum groenlandicum

15. Twigs not brown-woolly, glabrous or otherwise pubescent; older leaves not brown-woolly beneath.

16. Leaves long and narrow, more than 5 times as long as broad, the margins revolute.

17. Leaves 5 mm. or more wide; stipules or stipular scars present; buds with a single hood-like scale.

18. Leaves densely woolly-tomentose beneath.
Salix candida forma *candida*
18. Leaves glabrous or nearly so beneath.
Salix candida forma *denudata*

17. Leaves less than 5 mm. wide; stipules and stipular scars absent; buds with several exposed bud scales.
Andromeda glaucophylla

16. Leaves less than 5 times as long as broad.

19. Base of petiole swollen, covering the silky-whitish bud; bark extremely tough and flexible; shrubs.
Dirca palustris
19. Base of petiole not swollen, not covering the axillary bud.

20. Leaves with definitely arcuate secondary veins, broadly elliptical, 3-6 cm. wide, the petioles 3-6 cm. long; small trees.
Cornus alternifolia
20. Leaves with secondary veins running more or less directly to the margin, not arcuate and parallel to the margin for part of their length.

21. Low, prostrate shrubs or slender, creeping vines; leaves less than 1 cm. wide or if wider the stems and leaves rough-hairy throughout.

22. Leaves broadly oblong, 2-4 cm. wide, with a rounded or heart-shaped base and rough, hairy blade and petiole; low, prostrate shrubs; uncommon. *Epigaea repens*

22. Leaves narrow, less than 1 cm. wide.

23. Stems and lower surfaces and margins of the leaves having short, stiff, bristly hairs; slender, creeping bog plants.
Gaultheria hispidula
23. Stems and leaves glabrous or soft-hairy.

24. Lower surfaces of the leaves dotted with black, resinous glands; plants glabrous.
Vaccinium vitis-idaea
24. Lower surfaces of the leaves glandless.

25. Leaves 3.5 mm. wide or less, the lower surfaces whitish, the margins revolute.

26. Leaves ovate, the apex acute.
Vaccinium oxycoccus
26. Leaves elliptical, the apex obtuse.
Vaccinium macrocarpon

25. Leaves 5-7 mm. wide or more, the lower surfaces green, the margins only slightly revolute.
Arctostaphylos uva-ursi

21. Erect shrubs or trees; leaves over 1 cm. wide (occasionally as narrow as 6 mm. in Salix pedicellaris and Vaccinium myrtilloides, but these are distinctly erect shrubs).

27. Mature leaves pubescent beneath.

28. Petioles and young twigs conspicuously, densely pubescent, the pubescence persisting on year-old twigs; stipules and stipular scars absent; shrubs, mostly 2-4 dm. tall.
Vaccinium myrtilloides

28. Petioles and young twigs minutely pubescent; year-old twigs glabrous and dark brown; stipules or stipular scars present; shrubs or small trees to 5 m. or more tall.
Salix bebbiana

27. Mature leaves glabrous beneath.

29. Blades of later leaves 2-5 times as long as broad, the largest about 1.5 x 6 cm., broadly oblong to narrowly oblong-elliptic or narrowly obovate, the apex tapered or rounded, obtuse or acute; margin entire; bog shrubs.
Salix pedicellaris var. hypoglauca

29. Blades of later leaves 1.5-3 times as long as broad, the largest about 4 x 8 cm., broadly oblong, oblong-elliptic or obovate, the apex acuminate; margin usually serrate; planted trees.
Pyrus baccata

14. Leaf margins serrate.

30. Lower surfaces of the young leaves covered with white scales, becoming brown on older leaves; evergreen bog shrubs with leathery leaves. Chamaedaphne calyculata var. angustifolia

30. Lower surfaces of the young leaves glabrous or pubescent but not scaly.

31. Freshly bruised bark of twigs having a pronounced wintergreen odor.

32. Crushed leaves lacking the wintergreen odor; tall shrubs or trees.

33. Leaves mostly more than 6 cm. long; large trees; bark yellowish, peeling off in papery sheets. Betula lutea

33. Leaves less than 6 cm. long; small trees and shrubs; bark brown, not peeling. Betula X purpusii

32. Crushed leaves having the wintergreen odor; low shrubs to 10 cm. tall; leaves dark green, shiny and leathery. Gaultheria procumbens

31. Freshly bruised bark without wintergreen odor.

34. Leaves long and narrow, more than 6 times as long as wide.

35. Leaf margins revolute, obscurely toothed or often entire.

36. Lower surfaces of the leaves densely white-tomentose. Salix candida forma candida

36. Lower surfaces of the leaves glabrous or sparingly pubescent. Salix candida forma denudata

35. Leaf margins not revolute, sharply serrate.

37. Serrations small, 4-6 per cm. of margin; leaves bright green above, silky beneath when young, glabrous and whitish-green beneath at maturity. Salix gracilis

37. Serrations small but distinct, 1-3 per cm. of margin; intervals between the teeth broad and flat; mature leaves uniformly green on both sides. Salix interior

34. Leaves generally broader, less than 6 times as long as wide.

38. Teeth very large, about .5 cm. broad at the base; leaves 5-15 cm. wide, deeply cordate; tendrils present at the nodes opposite the leaves; vines. Vitis riparia

38. Teeth smaller; special tendrils never present but the stem sometimes climbing.

39. Leaves oblique at the base, the two halves unequal, 7 cm. or more long.

40. Leaves simply serrate, the base oblique-cordate, the upper surface smooth; buds plump, mucilaginous when chewed. Tilia americana

40. Leaves doubly serrate.

41. Upper surfaces of the leaves extremely rough; buds densely rusty-brown pubescent; twigs and petioles densely

pubescent; cross-section of bark uniformly brown in color; infrequent.
Ulmus rubra

41. Upper surfaces of the leaves somewhat rough, or smooth; buds, petioles and twigs only sparsely pubescent; cross-section of bark with alternating dark and light-brown layers.

42. Upper surfaces of the leaves smooth; twigs with prominent corky ridges; infrequent.
Ulmus thomasi

42. Upper surfaces of the leaves more or less rough; twigs lacking corky ridges; common.
Ulmus americana

39. Leaves symmetrical at the base, the two halves of equal size.

43. Petioles strongly flattened laterally, more than one-half as long as the blade.

44. Buds resinous, sticky; leaves deltoid, about as wide as long or wider, the base truncate or nearly so, the apex long-tapering; young twigs stout and yellowish.
Populus deltoides

44. Buds not resinous, glabrous or finely pubescent; leaves orbicular-ovate, the base rounded or somewhat cordate, the apex acute.

45. Leaf margins crenate-serrate, the teeth 3-4 per cm.; bud scales glabrous and shiny.
Populus tremuloides

45. Leaf margins coarsely toothed, the teeth 1-2 per cm.; bud scales puberulent.
Populus grandidentata

43. Petioles rounded or only slightly flattened, long or short.

46. Buds with resinous fragrance, sticky; lower surfaces of the leaves whitish, in age stained with brown.
Populus balsamifera

46. Buds neither resinous-fragrant nor sticky.
turn to choice 47, p. 15.

47. Leaves rhombic-ovate or rhombic-elliptic, broadest above the middle, the apex abruptly acuminate, the base cuneate, glabrous, paler beneath; young stems with narrow, corky ridges extending down the stem from the leaf insertions; planted tree.
Populus simonii

47. Leaves various, not as above; corky ridges not present.

48. Black glands present at the tips of the larger teeth of the mature leaves.

49. Leaves doubly serrate, very broadly elliptical to obovate-attenuate, 1-2 times as long as broad; tall shrub.
Prunus nigra

49. Leaves simply serrate, narrowly elliptical to elliptic-lanceolate, 3-4 times as long as broad; shrub to 1 m. tall.
Ceanothus ovatus

48. Black glands absent at the tips of the larger teeth, the margins singly or doubly serrate, the teeth blunt or sharp.

50. Petioles usually bearing 1 or more glands; crushed bark of fresh twigs with the odor of crushed peach pits (Cherries).

51. Veins inconspicuous below; lower surfaces of the leaves very smooth, densely rusty-brown pubescent along the lower end of the midrib; leaves elliptical to oblong.
Prunus serotina

51. Veins conspicuous below; lower surfaces of the leaves rough to the touch.

52. Leaves lanceolate to elliptical, broadest at or below the middle. Prunus pennsylvanica

52. Leaves obovate, broadest above the middle.

53. Shrubs, 5-10 dm. tall; leaves usually less than 2 cm. wide; infrequent.
Prunus pumila

53. Shrubs, 1-4 m. tall; leaves usually more than 2.5 cm. wide; fresh-crushed twigs with extremely rank odor of crushed peach pits; common.
Prunus virginiana

50. Petioles without glands; crushed bark of fresh twigs without the odor of crushed peach pits.

54. Leaf margins singly and finely serrate, the teeth 7 or more per cm. of margin.

55. Leaves 3.5 cm. long or less; low shrubs with slender, finely warty, green twigs and minute buds.

56. Leaves obovate, 1-2 cm. long, light green and soft; teeth blunt; stems to 3 dm. tall; shrubs of upland coniferous forest.
Vaccinium caespitosum

56. Leaves lanceolate to elliptical, up to 3.5 cm. long; teeth sharp; stems to 6 dm. tall; shrubs of the upland forest.
Vaccinium angustifolium

55. Leaves more than 4 cm. long.

57. Leaves elongate and narrow, commonly 4 times as long as broad or longer; buds with a single hood-like bud scale (*Salix*).

58. Leaves uniformly green above and below or only slightly paler below, neither white-silky nor glaucous.

59. Leaves bright and shiny-green both above and below, the apex long-acuminate, with about 6-7 teeth per cm. of margin.
Salix lucida

59. Leaves shiny or dull-green above, dull below, or if shiny below, the teeth 9-15 per cm. of margin and the apex short-acuminate.

60. Teeth 9-15 per cm. of margin; leaves somewhat light-green and shining below, glabrous.
Salix serissima

60. Teeth 3-8 per cm. of margin; leaves dull-green below, glabrous or pubescent.
Salix rigida

58. Leaves white-silky or glaucous below.

61. Leaves white-silky below; petioles 5-10 mm. long; twigs dull olive-green or olive-brown; planted trees.
Salix alba

61. Leaves glabrous below; petioles 10 mm. or more long; twigs shining-brown, reddish-brown or orange.

62. Leaves lanceolate, with a broad, rounded base and a long, acuminate apex; margin with 5-9 teeth per cm.
Salix amygdaloides

62. Leaves elliptic-lanceolate, with an acute or obtuse base and a short, acuminate apex; margin with 9-15 teeth per cm.
Salix serissima

57. Leaves broader, less than 4 times as long as broad; buds with more than 1 exposed scale or sometimes, in *Salix*, with a single hood-like bud scale.

63. Leaf apex acute or short-acuminate and curved, the blade folded near the tip when pressed flat; leaf texture firm, the color light green; petioles up to 2.5 cm. long; planted trees.
Pyrus baccata

63. Leaf apex not curved, the blade not folded as above; native shrubs and trees.

64. Leaf apex obtuse or acute or rounded, never acuminate.

65. Leaf margin finely serrate, with 7-11 teeth per cm.; blade broadly elliptical or slightly ovate; lower surfaces glistening, russet-green; sticky when young. Alnus crispa

65. Leaf margin sparsely serrate, with 0-8 teeth per cm.; blade oblong-elliptic or oblong-lanceolate; lower surfaces dull, whitish. Salix pyrifolia

64. Leaf apex acuminate.

66. Leaves uniformly shiny and light green above and below, somewhat leathery, glabrous. Salix lucida

66. Leaves whitish or dull green below, glabrous or pubescent.

67. Leaves whitish-green below, glabrous at maturity; buds with a single hood-like scale. Salix amygdaloides

67. Leaves dull green below, pubescent at least along the veins; buds with several exposed scales.

68. Lateral veins slightly curved toward the apex of the leaf; leaves dull above; bud scales olive-green, with brown tips and fine longitudinal lines; small trees with scaly bark. Ostrya virginiana

68. Lateral veins straight and parallel; leaves somewhat smooth and shiny above; bud scales purplish-brown, without longitudinal lines; small trees with smooth, fluted bark. Carpinus caroliniana

54. Leaf margins doubly serrate or coarsely singly serrate, the teeth fewer than 7 per cm. of margin (if the teeth are fine they are widely separated and still 7 or fewer per cm.).

69. Leaf margins doubly serrate.

70. Leaf blades decurrent on the petiole; leaf margins sharply and doubly serrate; small, thorny trees (Hawthorns).

71. Blades of the floral leaves cuneate at the base, the included angle 55°-90°, broadest 2/5-2/3 of the way to the apex.
Crataegus punctata

71. Blades of the floral leaves broadly cuneate to truncate at the base, the included angle 75°-180°, usually broadest 1/2 or less of the way to the apex. Crataegus chrysocarpa
C. macrosperma
C. succulenta

70. Leaf blades not decurrent on the petiole.

72. Buds stalked, purplish, with two fleshy bud scales; leaves coarsely doubly serrate, light bluish-green and pubescent below; tall shrubs or small trees of swamps.
Alnus rugosa var. americana

72. Buds sessile, with several exposed, thin bud scales; leaves not as above.

73. Lower surfaces of the leaves dotted with resin glands, pubescent along the veins especially in the axils; 5-8 pairs of lateral veins present.

74. Bark white, peeling off in papery sheets; 6-8 pairs of lateral veins present.
Betula papyrifera

74. Bark dark brown, not peeling off in papery sheets; 4-5 pairs of lateral veins present.
Betula X sandbergii

73. Lower surfaces of the leaves not dotted with resin glands, pubescent or glabrous; usually having more than 8 pairs of lateral veins except in Pyrus.

75. Leaf texture firm, somewhat leathery; petioles 1 cm. or more long; stipules .5-1 cm. long, sometimes curved and relatively persistent; bud scales dark reddish-brown, bearing a tuft of white, woolly hairs (Pyrus).

76. Mature leaves usually pubescent beneath, not folded near the tip when pressed flat; cultivated and rarely escaped.
Pyrus prunifolia

76. Mature leaves glabrous beneath, invariably folded near the tip when pressed flat; cultivated.
Pyrus baccata

75. Leaf texture soft or at least not leathery (except perhaps in Ulmus pumila); petioles less than 1 cm. long.

77. Petioles 2-4 mm. long; leaves not more than 7 cm. long; planted tree.
Ulmus pumila

77. Petioles 5-10 mm. long; leaves mostly over 7 cm. long; native shrubs and trees.

78. Leaves with 7-8 pairs of lateral veins.

79. Petioles and young twigs covered with stiff, brown hairs.
Corylus americana

79. Petioles and young twigs sparsely covered with soft hairs.
Corylus cornuta

78. Leaves with 10-15 pairs of lateral veins.

80. Lateral veins slightly curved towards the apex of the leaf; leaves dull above; bud scales olive-green with brown tips and fine longitudinal lines; small trees with symmetrical stems and scaly bark.
Ostrya virginiana

80. Lateral veins straight and parallel; leaves somewhat smooth and shiny above; bud scales purplish-brown, without longitudinal lines; small trees with fluted stems and smooth bark.
Carpinus caroliniana

69. Leaf margins singly and coarsely serrate, with no more than 7 teeth per cm. of margin or, when fine, still no more than 7 per cm.

81. Twigs and lower surfaces of the leaves gland-dotted.

82. Petioles 3-7 mm. long; small bog tree; uncommon.
Betula X sandbergii

82. Petioles 3-5 mm. long; bog shrub; common.
Betula pumila var. glandulifera

81. Twigs and lower surfaces of the leaves without glands. Turn to choice 83, p. 20.

83. Very low shrubs, 10 cm. or less tall; leaves to 6 cm. long, narrowly elliptical or oblanceolate, to 2 cm. wide, smooth, leathery, dark green and shining above; uncommon.

Chimaphila umbellata var. cisatlantica

83. Taller shrubs or trees or vines; leaves larger, not smooth and leathery or, if so, then oblong-lanceolate, acuminate at the apex.

84. Petioles less than 4 mm. long.

85. Leaves elliptical, 2-3 times as long as broad; planted trees.

Ulmus pumila

85. Leaves narrowly oblanceolate to narrowly oblong, 3.5-5 times as long as broad; native shrubs.

Spiraea alba

84. Petioles more than 5 mm. long.

86. Leaf blades leathery, light green and shiny, the margins evenly and more or less finely serrate; glands present on the petiole near the outer end and on the teeth near the base of the blade; leaf blades elongate-lanceolate, with a long, tapering apex. Salix lucida

86. Leaf blades not leathery, but of thinner, softer texture or, if leathery, then the blades elliptical or oblong and the slender petioles without glands.

87. Leaf margins inconspicuously and irregularly toothed, the teeth rounded, or the margin entire; leaves more or less narrow and elongate; buds with a single hood-like scale (Willows).

88. Young twigs reddish, glabrous and shining; leaves dark green above, with conspicuous light veins, the base rounded or subcordate.

Salix pyrifolia

88. Young twigs yellowish to brown, glabrous or pubescent.

89. Lower surfaces of the leaves glabrous or thinly pubescent; margins irregularly crenate-serrate or almost entire. Salix discolor

89. Lower surfaces of the leaves densely pubescent.

90. Leaf margins revolute; blades glabrous or nearly so above, 3-4 times as long as broad; shrubs of sandy uplands.

Salix humilis

90. Leaf margins flat; blades somewhat pubescent above, 2-3 times as long as broad; shrubs or small trees of lowlands and uplands.

Salix bebbiana

87. Leaf margins definitely and evenly serrate, or if irregularly serrate, then the leaf texture firm and the apex curving; leaves frequently quite broad; buds covered with several exposed scales.

91. Apices of the leaves curving so that a fold is present near the apex when the leaf is pressed flat; leaf texture firm or leathery; margin irregularly serrate, doubly serrate or entire.
Pyrus baccata

91. Apices of the leaves straight, not forming a fold when pressed flat; leaf margins more or less regularly and definitely serrate.

92. Teeth blunt.

93. Leaves acuminate; petioles 10-20 mm. long; axillary buds short, plump, pointing straight out from the twigs; upland vines.
Celastrus scandens

93. Leaves acute or obtuse; petioles to 10 mm. long; axillary buds parallel to the twigs; bog shrubs.
Rhamnus alnifolia

92. Teeth sharply pointed.

94. Apices of the leaves acuminate; 11-15 pairs of lateral veins present; buds olive-green or purplish-brown.

95. Lateral veins slightly bent toward the apex of the leaf; leaves dull above; bud scales olive, with brown tips and marked with fine longitudinal lines; small trees with symmetrical stems and scaly bark.
Ostrya virginiana

95. Lateral veins straight and parallel; leaves somewhat shiny above; bud scales somewhat purplish-brown, without longitudinal lines; small trees with fluted stems and smooth bark.
Carpinus caroliniana

94. Apices of the leaves rounded, obtuse or acute; typically 8-11 pairs of lateral veins present (12-17 pairs in *A. laevis*); buds mostly reddish.
Amelanchier spp.

96. Leaf margins finely serrate, with 5-8 teeth per cm.

97. Young leaves tomentose; main lateral veins 7-12 on each side of the midrib; petioles 1-1.5 cm. long; racemes erect.
Amelanchier intermedia

97. Young leaves glabrous; main lateral veins 12-17 on each side of the midrib; petioles 1-2.5 cm. long; racemes drooping.
Amelanchier laevis

96. Leaf margins coarsely serrate, with 3-5 teeth per cm.

98. Petioles 1.5-3 cm. long; marginal teeth 3-4 per cm., extending almost to the base of the blade; occasional.
Amelanchier huronensis

98. Petioles 1-2 cm. long; leaf margins sometimes entire or with 4-5 teeth per cm., when present the teeth extending to slightly below the middle of the blade; common. Amelanchier humilis

99. Buds curved.
Amelanchier humilis var. humilis

99. Buds straight.
Amelanchier humilis var. compacta

GLOSSARY OF TERMS USED IN THE KEY
(Numbers refer to illustrations)

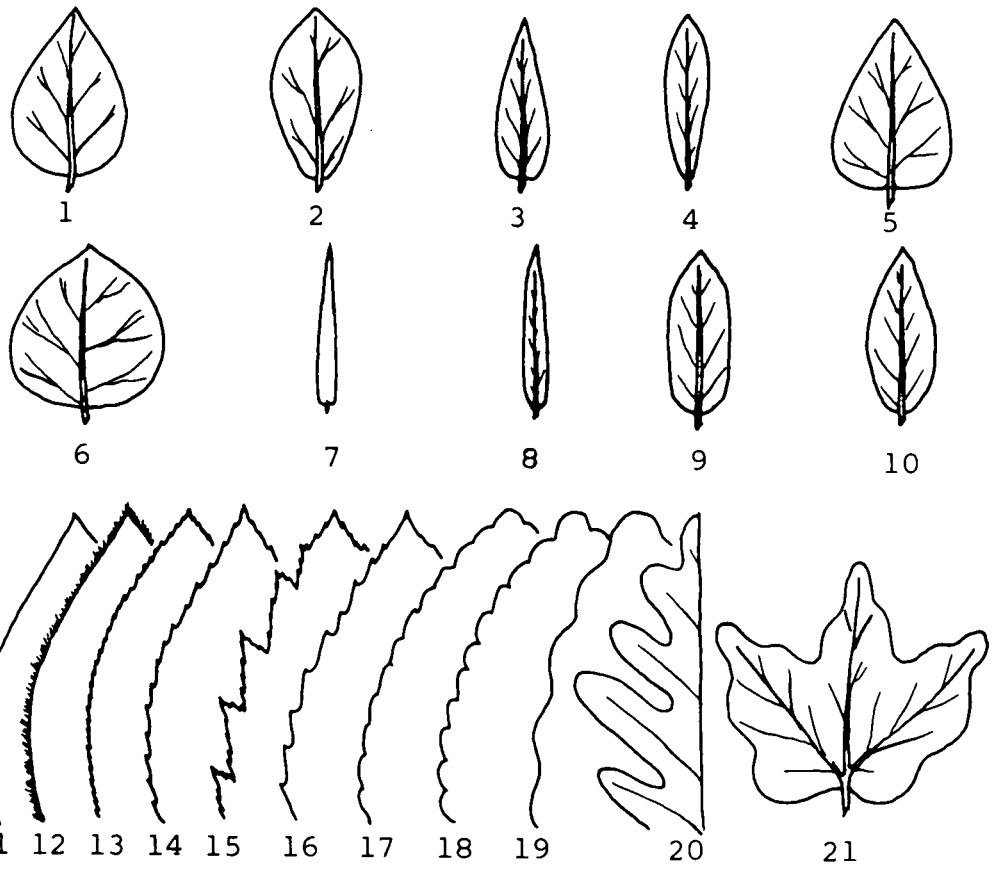
Acicular. Slenderly needle-shaped; (7).
Acuminate. Taper-pointed, the slope of the sides changing from the more abrupt to the more gradual at some point along the way; (23).
Acute. Ending in a sharp-pointed angle of less than 90°; (22).
Alternate. Bearing one at a time along an axis, i.e., one leaf at a node.
Apex. The tip or terminus.
Appressed. Lying close or flat against the organ to which it is attached.
Arcuate. Curved or arching; (arcuate veins, 32).
Attenuate. Gradually tapering to a slender tip; (7).
Awl-shaped. Like an awl; a narrow structure which tapers gradually upward from the base to a slender, rigid point.
Axil. The angle formed between the upper side of an appendage (leaf) and the organ (stem) to which it is attached.
Axillary. Of or related to the axil.
Blade. The expanded portion of a leaf, etc.
Bract. A modified leaf, often simpler in form, subtending a flower or inflorescence, or sometimes cauline.
Bristle. A stiff, coarse hair.
Ciliate. Fringed on the margin with hairs; (12).
Citrous. Lemon-like.
Cordate. Heart-shaped; (28).
Corymb. A flat-topped inflorescence comparable to a contracted raceme, the sequence of flowering from margin to center.
Corymbiform. Similar to a corymb in appearance.
Crenate. Dentate, the teeth much rounded; (18).
Crenulate. Finely crenate; (17).
Cuneate. Wedge-shaped; (27).
Decumbent. Reclining but with the summit ascending.
Deltoid. Shaped like the Greek letter delta; triangular; (5).
Dentate. Toothed, usually with the teeth directed outward; (16).
Dorsal. Pertaining to the back or outer surface of an organ; the under or abaxial side of a leaf.
Doubly serrate. With the larger teeth or serrations again serrate; (15).
Downy. Pubescent with fine, soft hairs.
Elliptic. Elliptical.
Elliptical. With the form of an ellipse; rounded about equally to both ends; (10).
Entire. The margin not at all toothed, crenate, or otherwise notched or divided; (11).
Exfoliating. Peeling off in thin layers.
Exserted. Protruding out of or beyond as the stamens from a corolla.
Fascicle. A close bundle or cluster.
Fetid. Having a strong, offensive odor.
Floricane. The cane or stem which produces the flowers; in Rubus formed from the primocanes of an earlier year.
Fluted. Channeled and ridged.
Foliaceous. Leaf-like in texture or appearance.

Foliate. Having leaves. The prefixes bi- and tri- refer to the number of leaves present.
Foliolate. Having leaflets. The prefix tri-, etc., refers to the number of leaflets present in a compound leaf.
Glabrate. Becoming glabrous; said of parts which are pubescent when young but become glabrous as they grow older.
Glabrous. Smooth, especially in the sense of having no hairs.
Gland. A secreting surface or structure; anything having the appearance of such an organ.
Glandular. Bearing glands or of the nature of a gland.
Glaucous. Covered with a whitish or bluish bloom, i.e., with a fine waxy powder that rubs off, like that on a fresh plum or cabbage leaf.
Grooved. Channeled.
Hirsute. Pubescent with rather coarse or stiff hairs.
Hispid. Provided with stiffish hairs or bristles; such surfaces are generally rough to the touch.
Incised. Cut sharply and irregularly and rather deeply.
Inflorescence. The flower cluster or clusters of a plant; a plant may have more than one inflorescence if the clusters are well separated by vegetative parts. Classified into many sorts depending upon the way they branch and the sequence of flowering.
Lanceolate. Shaped like a lance-head, broadest toward the base and narrowed to the apex; (3).
Lenticel. Corky spots on young bark.
Linear. Long, flat and narrow, the margins approximately parallel; (8).
Lobe. Any projection or subdivision (e.g., of a leaf blade), especially a rounded one.
Lobed. Divided into or bearing lobes; (20, pinnately lobed; 21, palmately lobed).
Node. The place on a stem where bracts or leaves are normally attached.
Nodal. Of or pertaining to a node.
Oblanceolate. Lanceolate with the broadest part toward the apex; (4).
Oblique. Slanting; said of a leaf base when a straight line drawn across the base does not form approximate right-angles with another line drawn along the midrib; (29).
Oblong. Two to four times longer than broad and with approximately parallel sides; (9).
Obovate. Inversely ovate, the broadest part toward the apex; (2).
Obtuse. Blunt or rounded at the end; (24).
Opposite. Paired, the two like structures on opposite sides of the organ which bears them, and at the same level. Said especially of leaves and branches.
Orbicular. Circular in outline or nearly so; (6).
Oval. Broadly elliptical, the breadth considerably more than half the length.
Ovate. Egg-shaped, the broader part toward the base; (1).
Palmate. Radiately lobed or divided, like a hand with the fingers outspread; (21; palmately veined, 33).
Pedicel. The stalk of a single flower.
Peduncle. The primary flower stalk, whether of a single flower or a cluster of flowers.
Perfoliate. Said of leaves when the stem to which they are attached appears to pass through the base of the blade.

Petiole. The stalk of a leaf; sessile leaves have no petiole.
Petiolule. The stalk of a leaflet of a compound leaf, if present.
Pilose. Hairy, especially with soft, fine hairs.
Pinnate. Compound, with the leaflets arranged along the sides of a common axis; (pinnately veined, 31).
Primocane. The first year's stalk or cane of Rubus and similar genera; generally does not produce flowers.
Prostrate. Lying flat upon the ground.
Puberulous. Minutely pubescent with short hairs.
Pubescent. Covered with hairs, especially if short, soft and down-like.
Raceme. A simple (unbranched) inflorescence with pediceled flowers upon a common axis, the sequence of flowering usually from bottom to top.
Racemiform. Raceme-like in appearance and form.
Rachis. The axis of an inflorescence or of a compound leaf.
Rank. A row, line or series.
Resinous. Having the qualities of resin such as the sap of a pine.
Revolute. Rolled backwards from the margin.
Rhombic. Shaped like a rhombus; said of more or less diamond-shaped leaves.
Rounded. Forming a curved line, such as the apex of a leaf or lobe of a leaf; (25, 30).
Scale. Any thin, papery body, usually a degenerate leaf; sometimes an epidermal outgrowth, etc.
Serrate. Having sharp teeth pointing forward; (14).
Serrulate. Finely serrate; (13).
Sessile. Lacking a stalk of any kind.
Sheath. A tubular envelope; often formed by the base of a leaf or its stipules.
Shoot. A stem with leaves, especially one of recent origin.
Sinus. The cleft between two lobes.
Spine. A sharp, woody or rigid outgrowth from the stem.
Stalked. Having a stem, petiole, peduncle, etc.
Stellate. Star-shaped; said of hairs having several branches arising from a common point of attachment.
Sterigmata. The projections from the twigs left after the leaves have fallen in some genera of the Pinaceae; any similar structure.
Stipulaceous. Stipule-like.
Stipule. An appendage at the base of a petiole or leaf or on each side of its insertion; usually paired.
Stolon. A runner, or any basal branch that tends to root at the nodes.
Stoloniferous. Bearing stolons.
Stoma. A minute opening between two guard cells in the epidermis of a leaf, stem, or other plant part.
Subcordate. Slightly or nearly cordate.
Terete. Having a circular transverse section.
Tomentose. Densely pubescent with matted wool.
Toothed. Furnished with tooth-like projections; said especially of leaf margins.
Truncate. Ending abruptly as if cut off transversely; (leaf apex, 26; leaf base, 5).
Villous. Bearing long, soft hairs which are not interwoven.
Wavy. Sinuous, but not strongly so; undulate; (19).

Legend for Figures

1. Ovate
2. Obovate
3. Lanceolate
4. Oblanceolate
5. Truncate; Deltoid
6. Orbicular
7. Acicular
8. Linear
9. Oblong
10. Elliptical
11. Entire
12. Ciliate
13. Serrulate
14. Serrate
15. Doubly Serrate
16. Dentate
17. Crenulate
18. Crenate
19. Wavy
20. Lobed
21. Palmate; Lobed
22. Acute
23. Acuminate
24. Obtuse
25. Rounded
26. Truncate
27. Cuneate
28. Cordate
29. Oblique
30. Rounded
31. Pinnate (veins)
32. Arcuate (veins)
33. Palmate (veins and lobes)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33

COMBINED INDEX AND CHECKLIST TO SPECIES INCLUDED IN THE KEY

*Introduced Species

Cornus alternifolia L.f.	Alternate-leaved Dogwood	Cornaceae	11
racemosa Lam.	Panicled Dogwood	"	4
rugosa Lam.	Round-leaved Dogwood	"	3
stolonifera Michx. var. baileyi (Coult. & Evans) Drescher var. stolonifera	Red-osier Dogwood	"	4
Corylus americana Walt.	Hazelnut	Corylaceae	19
cornuta Marsh.	Beaked Hazelnut	"	19
Crataegus chrysocarpa Ashe	Hawthorn	Rosaceae	18
macrosperma Ashe	Variable Thorn-apple	"	18
punctata Jacq.	Large-fruited Thorn-apple	"	18
succulenta	Hawthorn	"	18
Diervilla lonicera Mill.	Bush Honeysuckle	Caprifoliaceae	6
Dirca palustris L.	Leatherwood	Thymeliaceae	11
Epigaea repens L.	Trailing Arbutus	Ericaceae	11
Fraxinus nigra Marsh.	Black Ash	Oleaceae	7
pennsylvanica Marsh.		"	6
var. pennsylvanica	Red Ash		
var. subintegerrima (Vahl.) Fern.	Green Ash		
Gaultheria hispidula (L.) Bigel.	Creeping Snowberry	Ericaceae	11
procumbens L.	Checkerberry; Aromatic Wintergreen	"	13
Juniperus communis L. var. depressa Pursh	Prostrate Juniper	Cupressaceae	1
virginiana L.*	Eastern Red Cedar	"	1
Kalmia polifolia Wang.	Bog Laurel	Ericaceae	3
Larix decidua Mill.*	European Larch	Pinaceae	2
laricina (Du Roi) K. Koch	Tamarack; American Larch	"	2
leptolepis (Sieb. & Zucc.) Gord.*	N.C.N.	"	2
Ledum groenlandicum Oeder	Labrador Tea	Ericaceae	10
Lonicera canadensis Bartr.	American Fly-honeysuckle	Caprifoliaceae	4
dioica L. var. glaucescens (Rydb.) Butters	Glaucous Honeysuckle	"	5
hirsuta Eaton	Hairy Honeysuckle	"	4
oblongifolia (Goldie) Hook.	Swamp Fly-honeysuckle	"	5

Rhus glabra L.	Smooth Sumach	Anacardiaceae	9
radicans L. var. rydbergii (Small) Rehd.	Poison Ivy	"	7
typhina L.	Staghorn Sumach	"	9
Ribes americanum Mill.	Wild Black Currant	Saxifragaceae	10
cynosbati L.	Prickly Gooseberry	"	10
glandulosum Grauer	Skunk Currant	"	10
hirtellum Michx.	Swamp Gooseberry	"	10
hudsonianum Richards.	Northern Black Currant	"	10
lacustre (Pers.) Poir.	Swamp Black Currant	"	10
triste Pall.	Swamp Red Currant	"	10
Rosa acicularis Lindl.	Prickly Wild Rose	Rosaceae	7
blanda Ait.	Smooth Wild Rose	"	7,8
var. acicularioides (Schuette) Butters			
var. blanda			
woodsii Lindl. var. fendleri (Crepin) Rydb.	Prairie Wild Rose	"	7,8
Rubus acridens Bailey	Smooth Blackberry	Rosaceae	8
allegheniensis Porter	High-bush Blackberry	"	8
canadensis L.	Smooth Blackberry	"	8
flagellaris Willd.	Dewberry	"	8
idaeus L.	Red Raspberry	"	8
var. canadensis Richards.			
var. strigosus (Michx.) Maxim.			
minnesotanus Bailey	Dewberry	"	8
pensilvanicus Poir.	N.C.N.	"	8
pubescens Raf.	Dwarf Red Blackberry	"	7
recurvans Blanch.	N.C.N.	"	8
Salix alba L.*	White Willow	Salicaceae	16
amygdaloides Anderss.	Peach-leaved Willow	"	16,17
bebbiana Sarg.	Bebb's Willow; Beaked Willow	"	12,20
candida Fluegge	Hoary Willow; Sage Willow	"	11,13
forma candida			
forma denudata (Anderss.) Roul.			
discolor Muhl.	Pussy Willow	"	20
gracilis Anderss.	Slender Willow	"	13
humilis Marsh.	Prairie Willow	"	20
interior Rowlee	Sand-bar Willow	"	13
lucida Muhl.	Shining Willow	"	16,17,20
pedicellaris Pursh var. hypoglauca Fern.	Bog Willow	"	12
pyrifolia Anderss.	Balsam Willow	"	17,20
rigida Muhl.	Heart-leaved Willow	"	16
serissima (Bailey) Fern.	Autumn Willow	"	16
Sambucus pubens Michx.	Red-berried Elder	Caprifoliaceae	6
Shepherdia argentea Nutt.*	Buffalo-berry	Elaeagnaceae	4

Sorbus: See Pyrus			
Spiraea alba Du Roi	Narrow-leaved Meadow Sweet	Rosaceae	20
Symphoricarpos albus (L.) Blake	Snowberry	Caprifoliaceae	4
occidentalis Hook.	Wolfberry	"	3,5
Syringa vulgaris L.*	Lilac	Oleaceae	5
Taxus canadensis Marsh.	American Yew	Taxaceae	3
Thuja occidentalis L.	White Cedar: Arbor Vitae	Cupressaceae	1
Tilia americana L.	Basswood; American Linden	Tiliaceae	13
Tsuga canadensis (L.) Carr.*	Eastern Hemlock	Pinaceae	3
Ulmus americana L.	American Elm; White Elm	Ulmaceae	14
pumila L.*	Siberian Elm; Dwarf Elm	"	19,20
rubra Muhl.	Slippery Elm; Red Elm	"	14
thomasi Sarg.	Cork Elm; Rock Elm	"	14
Vaccinium angustifolium Ait.	Blueberry	Ericaceae	16
caespitosum Michx.	Dwarf Bilberry	"	15
macrocarpon Ait.	Large Cranberry	"	11
myrtilloides Michx.	Velvet-leaf Blueberry	"	12
oxycoccus L.	Small Cranberry	"	11
vitis-idaea L. var. minus Lodd.	Mountain Cranberry	"	11
Viburnum lentago L.	Nannyberry; Black Haw	Caprifoliaceae	6
opulus L. var. roseum L.*	Snow-ball Tree	"	5
rafinesquianum Schult.	Arrow-wood	"	6
trilobum Marsh.	High-bush Cranberry	"	5,6
Vitis riparia Michx.	Frost Grape; River Bank Grape	Vitaceae	13
Xanthoxylum americanum Mill.	Prickly Ash	Rutaceae	7